UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/877,684	06/17/97	VAUGHAN G.	96B035/2

IM51/1006

EXXON CHEMICAL COMPANY
LAW TECHNOLOGY
P O BOX 2149
BAYTOWN TX 77522

EXAMINER	
PASTERCZYK,J	
ART UNIT	**PAPER NUMBER**
1755	

DATE MAILED: 10/06/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/877,684	Applicant(s) Vaughan et al.
	Examiner J. Pasterczyk	Group Art Unit 1755

☒ Responsive to communication(s) filed on *1/23/98, 9/16/98*.

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-29* is/are pending in the application.

Of the above, claim(s) *6-12 and 22-29* is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-5 and 13-21* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☒ Claims *1-29* are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *2, 4, 5*

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-5 and 13-21, drawn to a late transition metal supported catalyst comprising a bidentate ligand, classified in class 502, subclass 162.

II. Claims 6-12, drawn to a late transition metal catalyst including a cocatalyst, classified in class 502, subclass 117.

III. Claims 22-29, drawn to an olefin polymerization process, classified in class 526, subclass various.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as a packing for a chromatography column. See MPEP § 806.05(d).

Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process of use can be practiced with another materially different product, such as a metallocene catalyst, a Ziegler-Natta catalyst, or a non-supported catalyst.

Inventions II and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process of use can be practiced with another product, such as a metallocene catalyst, a Ziegler-Natta catalyst, or a non-supported catalyst.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Brent Peebles, Esq., on 9/28/98, a provisional election was made with traverse to prosecute the invention of group I, claims 1-5 and 13-21. Affirmation of this election must be made by applicant in replying to this Office action. Claims 6-12 and 22-29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. Throughout the specification and claims, applicants use the term "system" to refer to their catalyst composition. If applicants intend "system" to mean the statutory class of invention composition, they are urged to amend both the specification and claims to reflect this. Otherwise, the examiner will consider that this is what applicants mean by the non-statutory term unless applicants amend otherwise.

7. The abstract of the disclosure is objected to because the support of the present claims is not required to contain a metal or metalloid oxide. Correction is required. See MPEP § 608.01(b).

8. The disclosure is objected to because of the following informalities: on pp. 9, 10 and 16, reference is made to copending US applications. The status of these applications should be checked and the specification amended to reflect that status. On p. 3, l. 5-10, when the bidentate ligand is covalently bonded to the metal, it is required that the ligand itself thus be negatively charged.

Appropriate correction is required.

9. Claims 1-5 and 13-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 5 and 13, it is not clear what is meant by a "bidentate ligand structure" as opposed to merely a bidentate ligand, as well as "stabilized"; stabilized against what? Which is directly attached to the solid support, the ligand or the entire complex? Further in claim 1, l. 2-3,

"the catalyst" lacks antecedent basis since earlier recitation is to a catalyst system. There should also be recitation in this claim of greater than zero catalyst loading since right now zero loading is permitted by "less than 100 micromoles".

In claims 2 and 14, "said particle support" lacks antecedent basis.

In claims 3 and 15, "the supported catalyst" lacks antecedent basis for the same reasons given above for claims 1 and 13, and "homogeneous supported catalyst" makes no sense since normally in this context, homogeneous refers to the reaction medium in which the catalytic reaction takes place. It could also mean that the reactants are all solid or at least all the same phase, but just what it means is not clear.

Further in claim 5, "element" in the last line should perhaps be --group-- since in chemistry "element" has a definite meaning already. It is also not clear between what and what the bridging elements bridge.

In claim 18, "boron" should be --borate-- since this is a monoanionic species.

In claim 19, it is not clear what is meant by an "anion ionizing percursor"; if Ph_3C^+ is an example of what is contemplated, this description does not fit with it.

In claim 20, "The catalyst" lacks antecedent basis since it is earlier referred to as a catalyst system, the claim should apparently depend from claim 19, and "ionizing anion precursor" lacks antecedent basis due to word order.

It is not clear that claim 21 should depend from claim 1.

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-4 and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 83/02907 (hereafter referred to as Masters).

Masters discloses a nickel catalyst complex supported on functionalized silica and containing a bidentate ligand (p. 3, l. 10; p. 7, l. 20; p. 11, example 2). Note that the finished catalyst of example 2 is dried of all solvents. Also note that the amounts of support and catalyst used in the example read on present claim 1. Hence claims 1-4 and 13-16 are anticipated by Masters.

12. Claims 1-3, 5, and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Sommazzi et al., USP 5,314,856 (hereafter referred to as Sommazzi).

Sommazzi discloses a silica supported Pd catalyst having a bidentate ligand, the amount of the catalyst on the support reading on present claim 1, the dried catalyst reading on claim 13, and the bridging groups between the two coordinating groups of the bidentate ligand reading on present claim 5 (col. 3, l. 2-17; col. 4, l. 12-20, l. 40-52; examples 1-3). Hence present claims 1-3, 5 and 13-15 are considered anticipated by Sommazzi.

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 1, 5, 13, 15 and 17-21 are rejected under 35 U.S.C. 103(a) as being obvious over Drent, USP 4,849,542 (hereafter referred to as Drent).

Drent discloses an optionally supported ionic palladium catalyst having a bridging bidentate ligand with an unsaturated group as the bridge, the anion being non-coordinating (col. 1, l. 3-68; col. 3, l. 10-25; col. 4, l. 8-35).

Drent lacks specific teaching of the amount of the metal compound on the support, or the drying of the prepared catalyst.

However, such steps in the preparation of a catalyst are conventional in the art to one of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art to apply that skill to the disclosure of Drent with a reasonable expectation of obtaining a highly-useful catalyst with the expected benefit of the active catalytic site on the metal being non-coordinated by its counter anion.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The other prior art cited by the examiner teaches and discloses further embodiments of the present invention and is generally cumulative.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Pasterczyk whose telephone number is (703) 308-3497. Our fax number is 305-3599.

Mark L. Bell
Supervisory Patent Examiner
Technology Center 1700

J. Pasterczyk

September 29, 1998